

Abstract Submitted
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Filamentation in Capacitively Coupled Magnetized Plasmas

STEPHEN WILLIAMS¹, None — Recent experiments at the Magnetized Dusty Plasma Experiment (MDPX) at Auburn University have observed the formation of filamentary structures in capacitively-coupled, rf generated plasmas at high magnetic field ($B \geq 0.5$ T). These plasma filaments, when viewed from the side, appear as bright vertical columns aligned parallel to the magnetic field that can either be stable or mobile structures, depending upon the experimental conditions in the plasma. In this work, the MDPX device is used to study the threshold conditions for filamentation formation under a variety of RF power, pressure, and applied magnetic field conditions. The formation of various spatial patterns of filaments, from individual filaments to spiral and ring-like structures, will be analyzed to determine how their physical properties (size distribution, number, etc.) vary with the plasma parameters. This presentation will focus on how those properties of the filaments compare with fundamental length scales in the plasmas (ion/electron gyroradii, collision mean free path, Debye length, etc.).

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